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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/761,765	01/18/2001	Charles Anderson	3633-501	5931

20582 7590 07/31/2002

PENNIE & EDMONDS LLP
1667 K STREET NW
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WASHINGTON, DC 20006

EXAMINER

PIZIALI, ANDREW T

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 07/31/2002

11

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/761,765

Applicant(s)

ANDERSON ET AL.

Examiner

Andrew T Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 11-16 and 20-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 11-16 and 20-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 11-16, 20-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,073,451 to Iida et al. (hereinafter referred to as Iida) in view of US Patent No. 5,800,933 to Hartig et al. (hereinafter referred to as Hartig).

Regarding claims 1-3, 11-16, 20-23 and 25, Iida discloses a glass substrate with a multi-layer stack comprising alternating thin layers of high and low refractive indices (column 7, lines 1-11). Iida discloses that the oxides of titanium, tin, zinc, tantalum, and zirconium may be used for the high refractive index antireflection layers (column 7, lines 1-11), but fails to mention the use of a high refractive index antireflection layer comprising at least one titanium oxide layer and at least one additional high index layer.

Hartig discloses the use of a high refractive index multilayer antireflection film comprising titanium oxide and silicon nitride (column 7, lines 14-31). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a multilayer antireflection film comprising titanium oxide and silicon nitride, as disclosed by Hartig, for the high refractive index film (62) of Krisko, because it has been held to be within the

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general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice.

Regarding claims 14-16, Iida discloses that the low refractive index layers may comprise silicon oxide, aluminum oxide, or silicon/aluminum oxide, and further discloses that the layer most removed from the substrate may comprise silicon oxide, aluminum oxide, or silicon/aluminum oxide (column 7, lines 1-11 and column 7, lines 55-61).

Regarding claims 20-21, 23 and 25, Iida discloses that the multi-layer structure may further include silver films and thereby exhibit electromagnetic shielding effects (column 6, lines 1-9). Iida also discloses that the multi-layer coating may be used as a vehicle windshield or a rear window glass by lamination with an uncoated transparent glass plate using a plastic interlayer such as polyvinyl butryal (column 4, lines 4-53).

Regarding claim 22, Iida discloses that the glass plate may be either colorless or colored and that the glass may be curved (column 5, lines 44-56).

3. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iida in view of Hartig as applied to claim 22 above, and further in view of US Patent No. 5,948,544 to Kim.

Iida fails to mention or suggest the specific use of a polycarbonate or a polyacrylate polymer material in a multi-layer structure, but Kim discloses that it is known in the art to use polycarbonates substrates, instead of glass substrates (column 1, lines 49-54), in certain applications such as applications involving window glass for buildings (column 1, lines 8-12). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a polycarbonate substrate, as disclosed by Kim, as a substitute for the glass substrate

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of Iida, because polycarbonates provide a weight advantage and are impact resistant (column 1, lines 36-43).

4. Claims 1-3, 11-16, 20-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,073,451 to Iida et al. (hereinafter referred to as Iida) in view of US Patent No. 5,821,001 to Arbab et al. (hereinafter referred to as Arbab).

Regarding claims 1-3, 11-16, 20-23 and 25, Iida discloses a glass substrate with a multi-layer stack comprising alternating thin layers of high and low refractive indices (column 7, lines 1-11). Iida discloses that the oxides of titanium, tin, zinc, tantalum, and zirconium may be used for the high refractive index antireflection layers (column 7, lines 1-11), but fails to mention the use of a high refractive index antireflection layer comprising at least one titanium oxide layer and at least one additional high index layer.

Arbab discloses that two-part high refractive index antireflection films may be used in multi-layered films because they exhibit chemical and heat stability (column 1, lines 8-13 and column 4, lines 35-64). Arbab discloses a two-part high refractive index antireflective film comprising a first layer of any suitable high refractive index material, such as zinc oxide or indium tin oxide, and a second layer of any suitable high refractive index material, such as zinc tin oxide (column 5, lines 12-46). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the two-part high refractive index antireflective film of Arbab, in at least one of the high refractive index layers of Iida, because two-part high refractive index antireflective films exhibit chemical and heat stability desirable in a heat insulating glass article. Arbab does not specifically mention the use of titanium oxide in the high refractive index two-part film, but it would have been obvious to one having ordinary skill in the

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art at the time the invention was made to make each high refractive index layer from any suitable high refractive index material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice.

Regarding claims 14-16, Iida discloses that the low refractive index layers may comprise silicon oxide, aluminum oxide, or silicon/aluminum oxide, and further discloses that the layer most removed from the substrate may comprise silicon oxide, aluminum oxide, or silicon/aluminum oxide (column 7, lines 1-11 and column 7, lines 55-61).

Regarding claims 20-21, 23 and 25, Iida discloses that the multi-layer structure may further include silver films and thereby exhibit electromagnetic shielding effects (column 6, lines 1-9). Iida also discloses that the multi-layer coating may be used as a vehicle windshield or a rear window glass by lamination with an uncoated transparent glass plate using a plastic interlayer such as polyvinyl butryal (column 4, lines 4-53).

Regarding claim 22, Iida discloses that the glass plate may be either colorless or colored and that the glass may be curved (column 5, lines 44-56).

5. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iida in view of Arbab as applied to claim 22 above, and further in view of US Patent No. 5,948,544 to Kim.

Iida fails to mention or suggest the specific use of a polycarbonate or a polyacrylate polymer material in a multi-layer structure, but Kim discloses that it is known in the art to use polycarbonates substrates, instead of glass substrates (column 1, lines 49-54), in certain applications such as applications involving window glass for buildings (column 1, lines 8-12). It would have been obvious to one having ordinary skill in the art at the time the invention was

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made to use a polycarbonate substrate, as disclosed by Kim, as a substitute for the glass substrate of Iida, because polycarbonates provide a weight advantage and are impact resistant (column 1, lines 36-43).

Response to Arguments

6. Applicant's arguments with respect to claims 1-3, 11-16 and 20-25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. The following patents are cited to further show the state of the art with respect to double layer high refractive index films:

US Patent No. 6,238,781 to Anderson et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Piziali whose telephone number is (703) 306-0145. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-5665.

g-p

atp

July 25, 2002

Andrew T Piziali
Examiner
Art Unit 1775

Deborah Jones

DEBORAH JONES
SUPERVISORY PATENT EXAMINER